

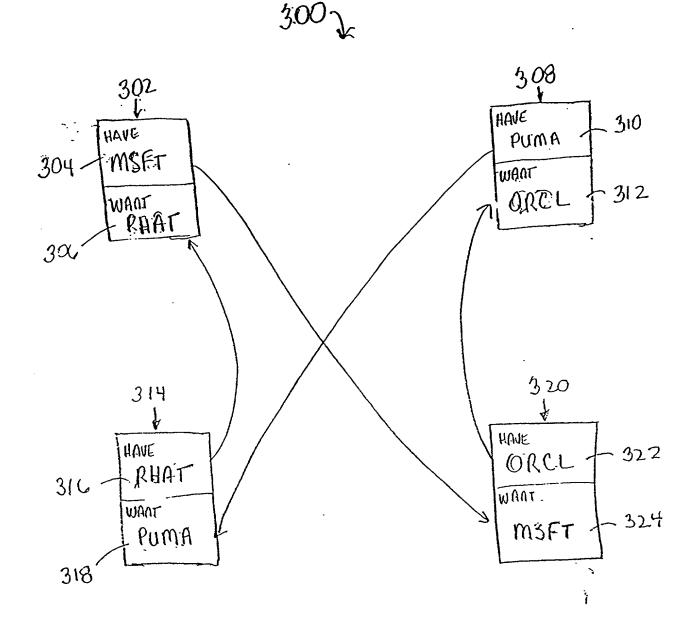
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BARTERER ORDER
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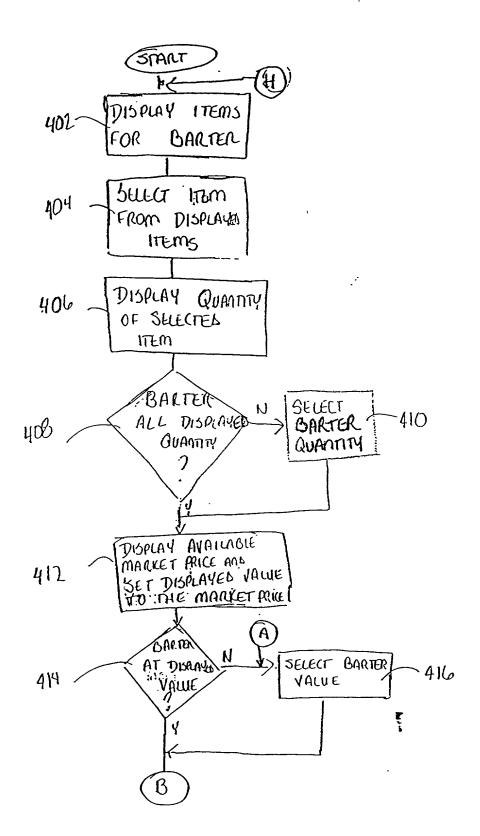
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	3340	Owx	40	MKI	-	RHA	5	18		£-218
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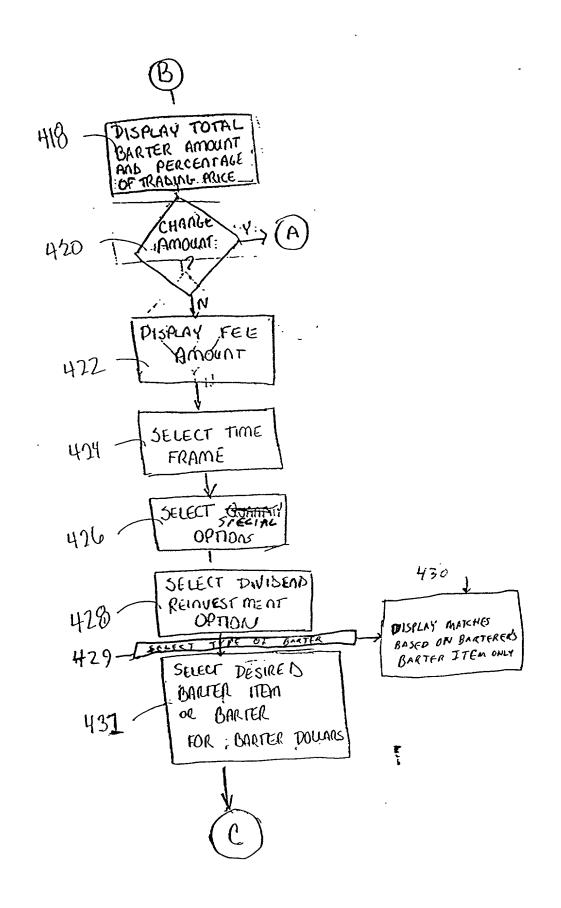
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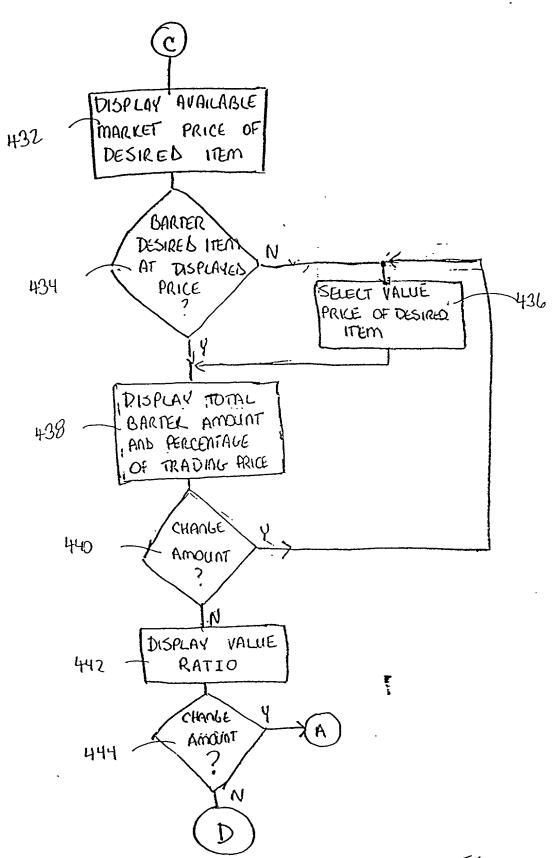
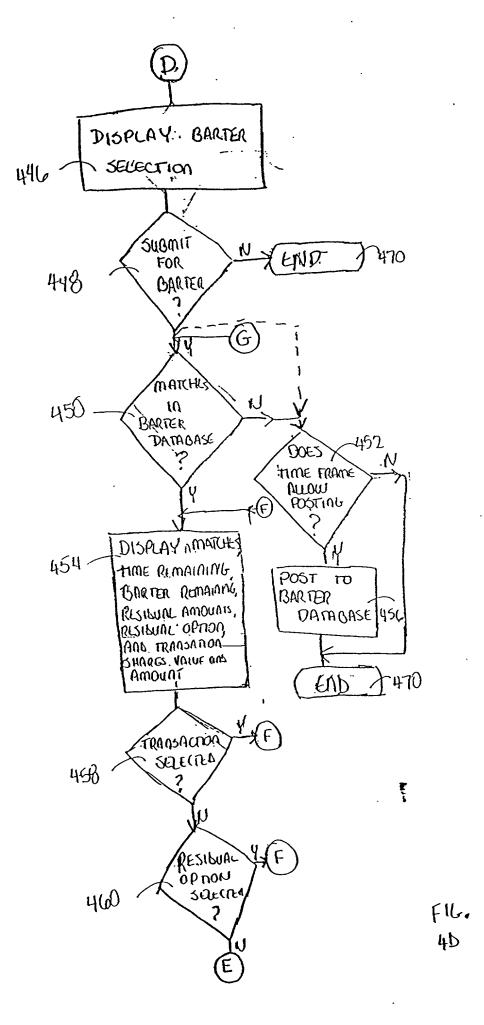


FIG 4C



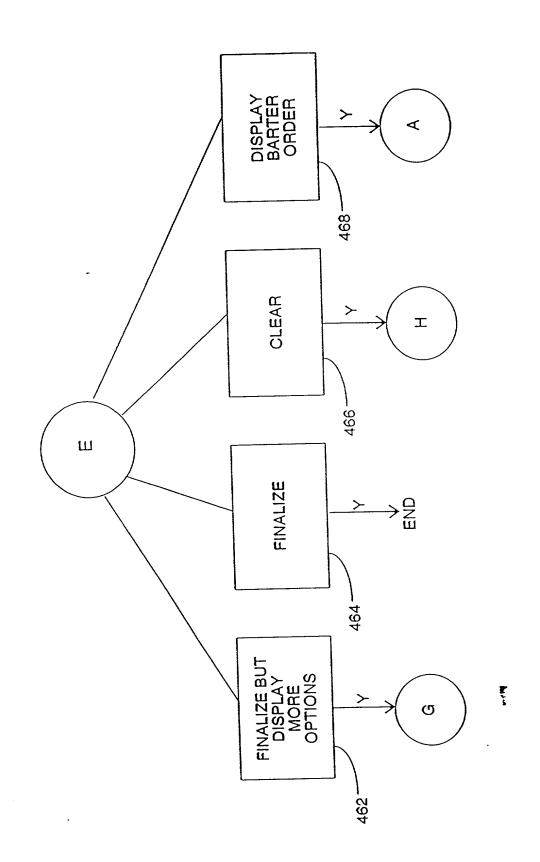


FIGURE 4E

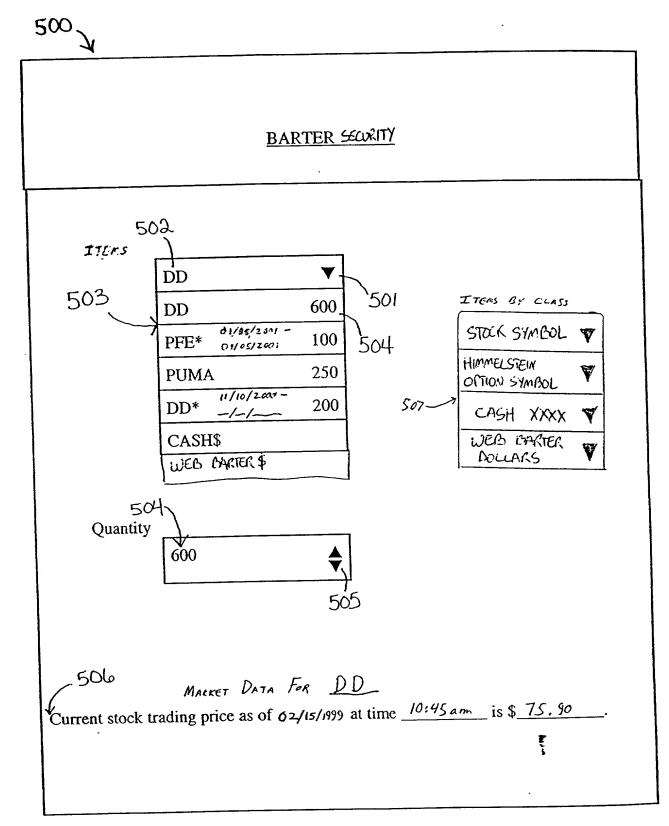
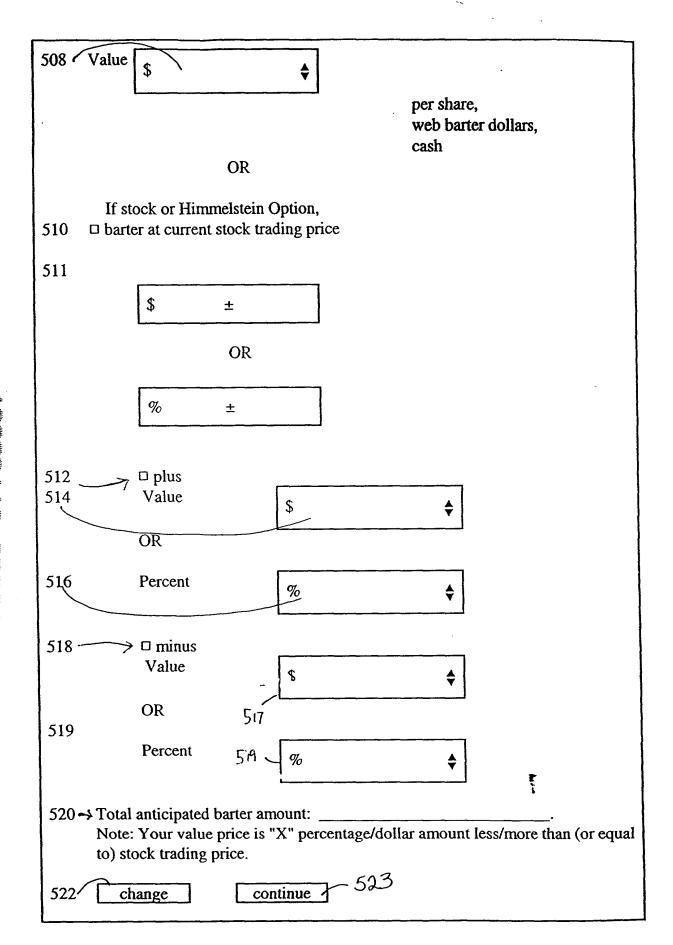


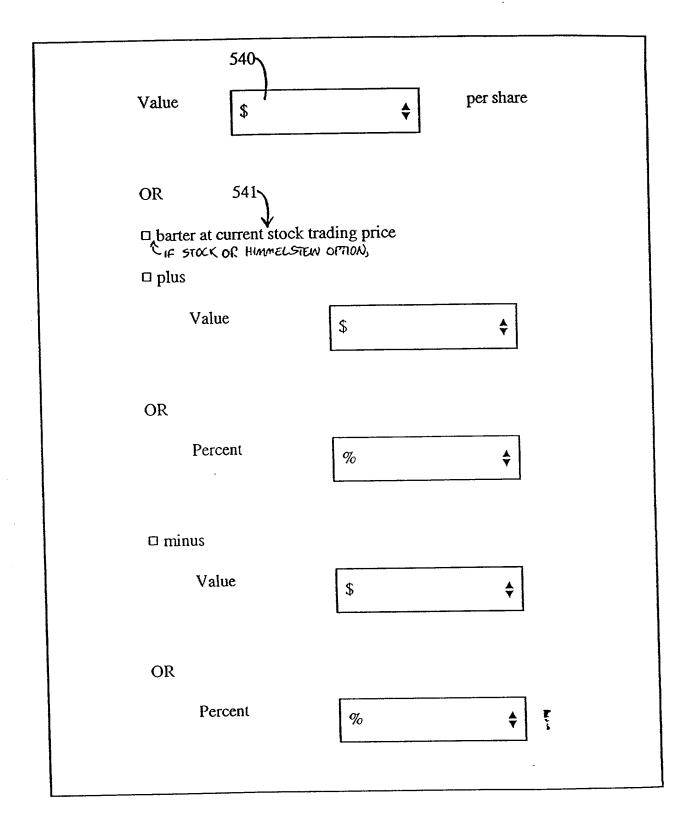
FIGURE 5A



524 FEE AMOUNT per share is anticipated to be, if direct barter (total anticipated fee);
526 FEE AMOUNT per share is anticipated to be, if web barter (total anticipated fee);
528 → Timing
day only ▼
day only
good until canceled
fill or kill
immediate or cancel
only view current posts
530 <u>Special Conditions</u> (optional)
☐ minimum quantity 600 ♦
□ do not reduce
□ all or none
□ deferred settlement date before date after
531 _ Other Security, if any, to be provided at settlement

532→ <u>Dividend Re</u>	einvestment (for new stock)
0	yes, new stock must have a dividend reinvestment program
a	no, new stock must not have had a dividend reinvestment program
а	accept new stock with or without a dividend reinvestment program
534 Type of Bar	<u>ter</u>
	direct barter only (fee amount anticipated to be)
	if direct barter not available, then barter with web site (fee amount
	anticipated to be)
<u>Desired Iter</u>	<u>n</u>
Security AE 535	T ▼ Industry Health Care ▼ -536
537→□ □	HIMMCLSTEIN CPTION FOR STOCK STOCK Cash WEB BARTER BOLLARS
538→Current sto	MARKET DATA FOR AET ck trading price as of 04151539 at time 10:45am 15 47.50

FIGURE 5D

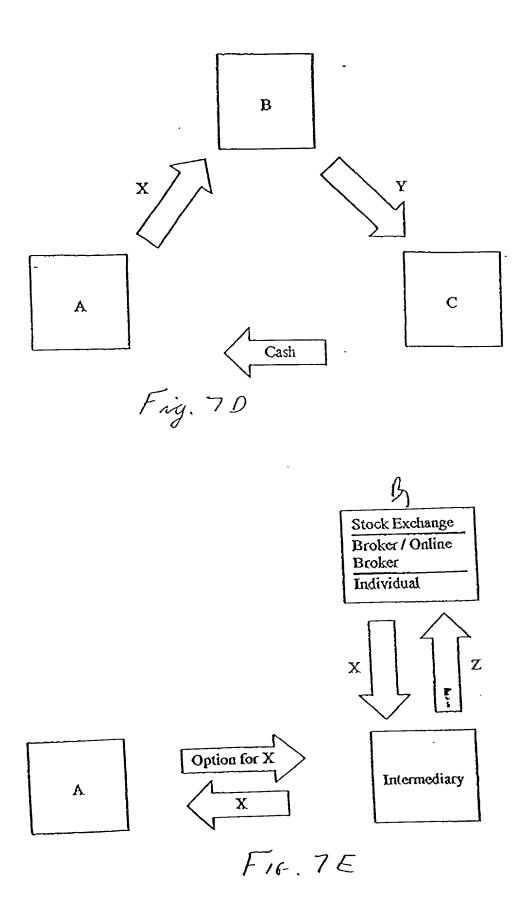


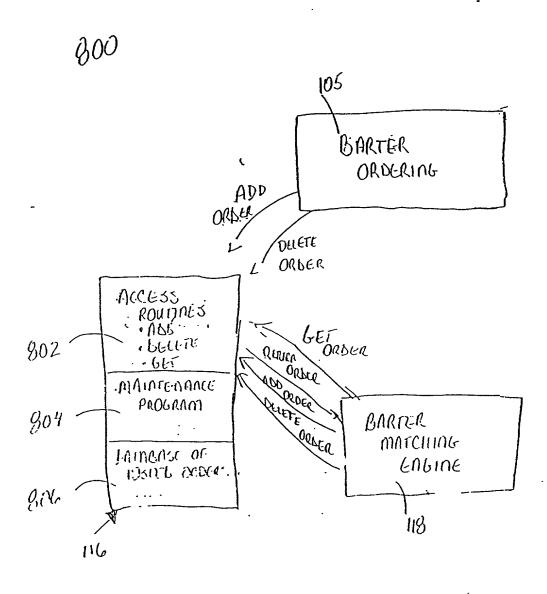
542 Your total barter amount is (anticipated to be)	for new stock
Note: your value price is "X" percentage/dollar amount less/n	nore than current
stock trading price. change continue]
·	
544-> Note: Ratio of your stock to stock trading price divided by new stock	to stock trading
price is "XX.XX" change	
-	
546 System will re-list order and list terms and conditions and ask if you	want to continue
must click on the continue/agree icon	
	-549
548 Continue/Agree Quit	7
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AVAILABLE BARTER ORDERS Note: Click on Order # if choose to do barter with their train that the state of the state

IF MORE THAN ONE SELECTION, CLICK ON SEQUENTIAL PREFERENCE

							424					f-		
	Dividend	Yes	Š	Yes	•	<i>ب</i> کر		CROW		Y E O			201	
	Timing		7	1 nite	:tlement = ø	TIME REMAINING		O HOLD IN ESCROIN	1 December 17	STOCAC STOCAC		459	FINALIZE TRANSACTION BUT DISPLAY MORE BARTER OPTIONS	
	Special Conditions	None	Minimum 40	After 2/01/00 Before Indefinite	Security at Settlement = 0	AMOUNT OF BARTER LEFT		14AL 57 LEF T					FINALIZE BUT DIS	
	Price Fluctuate with stock trading Price					10		RESIDUAL AMOUNT LE		}				
	Price Fl stock tra	Yes	°N	Š		1 1-1	4 / 	<u> </u>		1.79 		6 33	20	
	Barter <u>Amount</u>	\$13,800.00 Yes	\$4,602.50	\$11,568.75 No		BARTER						7	FINALIZE TRANSACTION	9
	# of <u>Shares</u>	120	40	100		PRICE OF RECEIVING 1 TEAL						-	7 8 8	五 ら ら
	Value <u>Ratio</u>	1.0200	1.0194	1.0139		RECEIVING						(b32)	ARTER.	
777 777 77	Ratio to stock Price trading price	1.00	39995	, .9941		OF SI ETEM							CHANGE BARTER ORDER	
	Price	115	1151/16	1151116		25 PR						Ę.	ا ك	
	Symbol	ВМ	ВМ	BM		# OF SHARES PRICE						63 tra	CLEAR	
	610 Jorder #	1) 1000526	9843566	1043442		OR DER#							CLE	
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Darrens educates and Date	MMDDYY	MMDDYY	MMDD.	MMDDYY	MMDDYY	MMDDYY	жидору Хуадоруу	MMDDYY	MMDDY
	Dividend?	Par Discount Premiono	N/A	N/A	N/A	N/A	Fixed or Variable Inferest Rafe	Compound Interest?	Dividend? Pre, Discourt, Frenken Flad or Variable Interest Compound Interest?
Dise/Maturity Date	N/A	NA	MMDDYY	N/A	MMDDYY	N/A	ММБВУУ	ММОВУУ	MMDDYY
Interest Katel Current Yield	NA	N/A	Y% interest rate	N/A	Y% yield rate	N/A	Y% interest rate	Y% interest rate	Y% interest rate
Barter Value	S or specific relationship to market value	USS or specific relationship to market value	S or specific relationship to market value						
Expiration Settlement/Date	WA	NA	NIA	MMDDXY	N/A	ММВВУУ	NA	N/A	ММОВУУ
Bid/Sbike Price	N/A	NIA	V/V	\$-/ +	S-H	NIA	NIA	NIA	1/-3
Markel Value	S	nss	S	S	s	~	S	5	
mout);	# Shares	×	×	Z	×	Measurement * Quantity	X	X	X
llem/ Identification	Symbol or Name	US or Foreign	Ssuer	7	Treasury Notes, Bonds or Bills	Symbol or Name	Issuer	lsmer	noı
Class	Stock	Currency	Bonds	Options	Government Bond	Futures	Annurbes	CD's	Web Barter Dollar

Z= Aay security X= Foreign or domestic currency

Y = interest rate or current yield in percentage N = Quantity of options f = Quantity = Quant

ransa:tions	or CD's depending on lemmand conditions in harder transactions	ng on lerms and co	or CD's dependin	# Could gave in		and the contract of the contra		A a Couldhave BilStrike Price if Web Barter S are from Options or	Strike Price if We	A - Could have Bi
n = Could have Malurity Date if Web Birtin S are from Bonds, Government Fends, Abrunt	om Bonds, Governin	'ah Berter S are fr	Salurity Date if W	= Could have	a	V	25.000.00	\$ 25,000.00 \$	IOU	9 Web Barter Dollan
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as are sent billion						VAL	100,000,00	\$ 100,000.00	TransAmerica	7 Annuity
	Pacd or Vertable latered	90-unf-0;	10.50%	\$ 105,000,00	<u></u>	٧/٧	6			
					30-1/04-77	N/A	\$ 3,157,50	In troy or	Gold	6 Funnos
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	SE .	XX	NiA	3,448.28	S VIA	4 /2	1979	\$11.000 A	;	
an ive adam.da.Cab	3					VAI	10,980,00	100 Shares S	YOF	/ Steck
01.FES-0129-PCB-A1	Dividend?	N/A	A/N	10,750.00	8	Ž	00 100			
			CM/OF HE	raine	Settlement Dule	Price	Value		Identification) in
Date OpenClase	Cone	Due/Katurity Dute	Interest Rate	Barter	Expiration	Sid/Strike	Market	Amsmul	Tions	1
S. L. S. Adamson	ſ									

Gevernment Bonds+C9 depending on terms and conditions in barter transactions

B = Could bave Extration Date is Web Barter 5 are from Options or
Futures depending on terms and conditions in barter transactions

C = Coud have Yield or interest Rate if Web Barter 5 are from Bonds, Government

Fig. 9B

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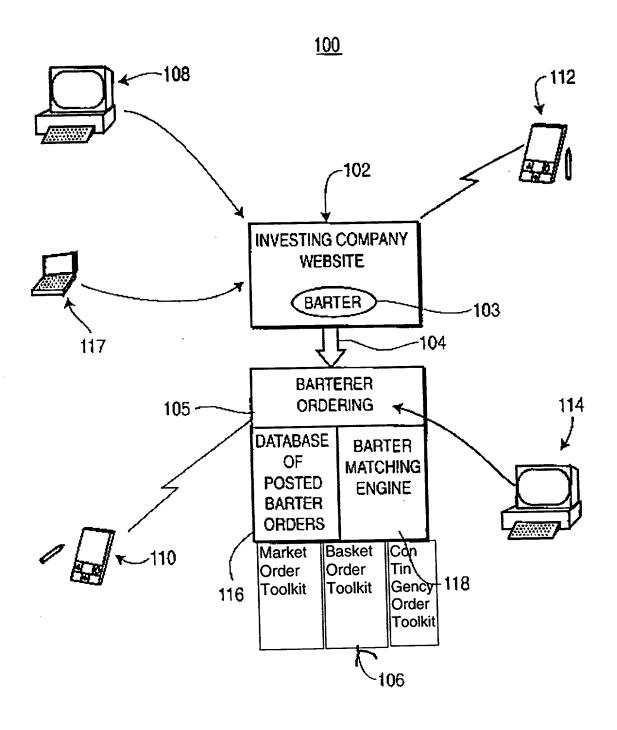
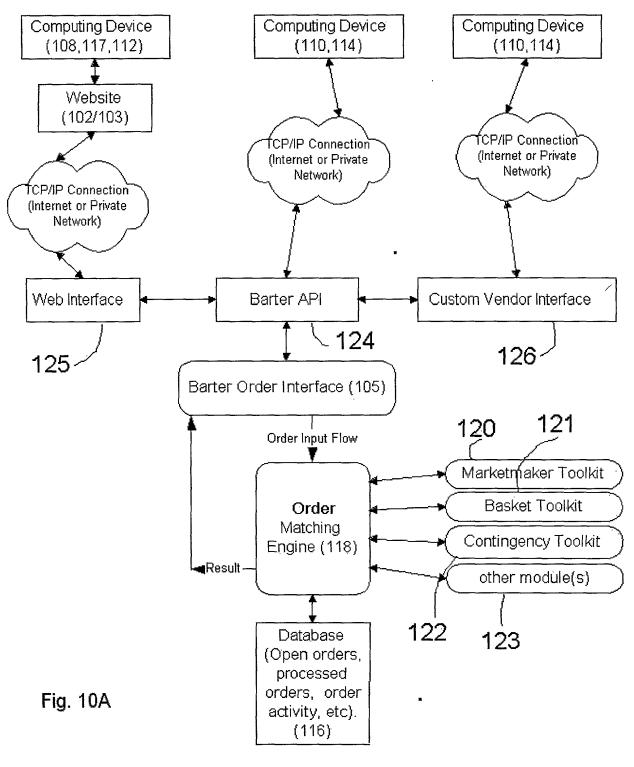


FIG. 10



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Figure 11

Spread \$375 (12.56) UNITMBD -\$406.25 + 1/8 3418.75 -\$400.00 10×10::::
YOUR UNITBID -\$410.50 National Best Bid and Offer

LT Chg Bid. Ask Size :::

HD 54 1/8 + 1/2 54 1/8 54 5/18 10 x 13

IBM 100 1/8 +1 1/4 103 100 1/4 25 x 10 SELL 2000 HD -vs.-- BUY 1000 IBM TOTAL NBBO -\$8,125 +\$250 -38,275 -38,000 YOUR TOTAL BIO -48,250 -48,250 Bollars Saved esponse to User Trade Request Decision Inchies

Figure 12

HE R BOX

Response to User Trade Request-Definitions

NBBC is National Best Bid and Offer. These prices and trade sizes occur on the NYSE, Nasdaq, and other exchanges and Electronic Communications, Networks (ECNs). Although NBBO prices and sizes are set outside of the BarterSecurities system, this user can trade on them from the BarterSecurities "Response to User Trade Request" sizeen.

<u>Unit Priors</u> are calculated per 100 shares of the requested self side. If the user request is to Sall 2000 atis HON and buy 1000 atis IBM, the Unit Trade is to self 100 she HON and buy 50 and IBM.

National Best Bid and Offer Screen (yellow box.)

Your order, or your Request for Trade Prices, is deemed to fall on the <u>bid</u> side of the Barter market. The NBBC bid price is on the same side of the market as your order. The NBBC offer price is on the contrastice of the market as your order, and you can trade against if it no better offer exists.

The NBBO unit bid price corresponding to your order/request is calculated by tracing the self-side of your order on the NBBO bid price and tracing the buy-side of your order on the NBBO ask price (i.e., the brown equity price in the yellow box.) Likewise, The NBBO unit offer price for your order is calculated by tracing the self-side of the Barter on the NBBO offer price and tracing the buy-side of the Barter on the NBBO bid price (i.e., the blue prices in the yellow box.) Positive unit prices mean that you PAY that price to execute the order. Negative unit prices mean that you PAY that price to execute the order.

<u>Total NSBO</u> prices are the product of the unit prices and the self-eide quantity of your order. Agein, positive prices mean that you PAY that price to execute the order. Negative prices mean that you RECEIVE that price to execute the order.

If you have specified a limit price for your Saster order, then your unif bid price and total bid price are shown in the yellow box. If your unit bid price exceeds the NBBO unit bid, then your order is said to be <u>hot.</u> The Barter Securities system afterights to locate the best offer only for hot bids. Tip: If your bid is not hot bus you want. Barter Securities to show you the best offers, then use the Request Barter Order Trade Prices screen, which does not allow you to enter a limit price.

<u>Dollars Saved</u> is the amount that you would save by executing your order at your limit price relative to the NBBO price. If the NBBO size is not targe enough to complete your order, then savings are computed relative to "hext best" prices that marketmakers are showing. Click <u>Trade Help</u> to team more about using the BarrerSecurities system to save money relative to the NBBO market and/or to execute larger size than is available on the NBBO market.

PIELE BOA Response to Deer Trade Request-Trade Help

Suppose that you have made a request to sell 2000 shares HON vs. buying 1000 shares EM and that the ight half of the "Response to User Trade Request" screen shows the bids and office below.

1000 2000	-418 75 -412.50	NBBO Bid Your Bid	
Salision	Link	Ome	
tinares	Pfice	Type	
1000	-407.50	System Offer	Trade
500	-403 75	System Offer	Trade
500	-400.94	System Offer	Trade
2000	-400.00	System Offer	Trace
1000	-400.00	NBBO Offer	Trade

The top of the Edited, in this to the Dust technology, show, the but size thry but only and the pottom of the screen (not technology) shows ofters. Your inquest is always expressed as a bid (see DM) (0.0%) and, an such, shows up on the top part of the screen along with the NSSO but. Also, the screen may reflect bids that are internet to the BesterSecurities eyetern (in addition to your order.). All bids and offers are expressed in terms of a "Lind Price", or per 500 states of the set-side of the Barter Order.

In the example above, you tak is better five, you're willing to receive fewer dollars; then the NEEO bid.
This means your bid is "bid" and may be executed at any time from within the Barter Becumbes system: if your bid price is below the NEEO bid, you will have to proactively trade on an existing offer fail a less terrorable pace than your current unit bid; or wait for the NEEO bid to drop before your order has a chance of being executed.

in the lower half of the screen (end background), the NDEO unit offer price is shown along with offers that large been generated by the system. All of the system offers will either (1) some you money resolve to the NDEO offer because the unit price of execution is more tax-proble or (2) allow you to trade a larger size (up to your request size) than the NDEO market.

If you click on the word "Tiggg" on an offer line, the eyears attempts to fill the requested trade size at the must revokable price to the trader <u>up or the price lines on the price. The first was offered</u>

For example, if you disk TIBLE on the first offer line: "1000 / -407 50", the system will attempt to trade 1/2 of the requested barter (i.e., 1000 shares available on the set-side out of the 2000 requested) at the unit price of .\$407 80, meaning that you RECEIVE a total of \$4075.00.

If we read you click on the third offer the "SCO F-ACCIA", the system will attempt to the first transfer of the requested trade size (1000 HC/K vs. SCO (BM) at the most havorable unit pote to the trader of 4,407.50, (RRMed by another SCO HC/K vs. 250 IBM at 4,402.75, followed by another SCO HC/K vs. 250 IBM at 3,402.

Note that if you had discrete on the booth offer line, "200 / \$400.07 you would have gotten the same result as in the previous exempte. This is because the system attempts to trade only enough size to 50 the critial cade request (200 stures on the selecte), and only at the most brockete prices for the user.

Figure 14

der Entry	22 X 73			
Buy Side Symbol	140	Self Side	Check 9 Street Strike	
Amount Shares Orlans 6		•		Execution Types:
-	Box Type	[Salect One]	Y	Market
				 Pay/Receive Limit
08998		*		 Advanced Market
0:: 0::				Advanced Pay/Receive Limit
Timing and Option		7		
Fitter Ki	te or Cancel	All or Ness So and Redu		
Submit No	w] [59		ocei	

Figure 15

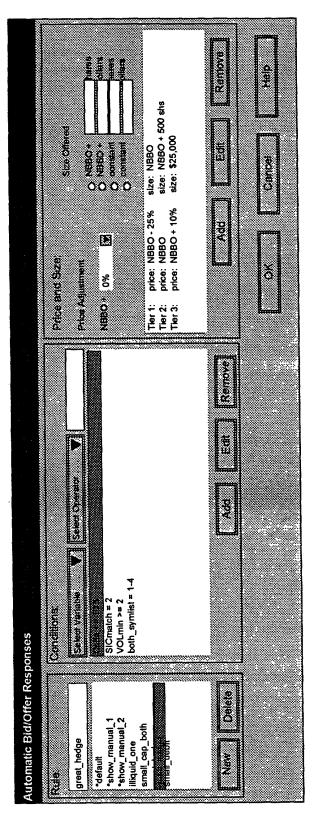


Figure 16

Symbol Lists	
Enter List Name	Enter Symbol:
1. Fred 2. John	IBM SUNW
G. Auton	DELL CPQ
New Edit Delete	Add Remove
	OK Cancel

Figure 17

HERP BOX A Rule is a statement of how and when to respond automatically to retail Barter Orders. Enter a new Rule name or click on an existing rule name to create or edit the rule's Continions and Automatic Offers. To create a Condition combine a variable name, an operator, and a critical value. Click were to see variable definitions and allowable value ranges. For example, to define an order with relatively little net market exposure, construct the aquation: 10% Defta <= Markennakers can set up Automatic Offers that comprise any number of tiers, each of which is expressed in terms of the current NBBO prices and sizes. Consider the following example: 1. Relail trader wants to Buy 1000 ABC, Sell 2000 XYZ. 2. NBBO markets are ABC 100/100/20 20x20 XYZ 45745.15 10 x 5 For Rule 1. Sie marketnisker constructs an Automatic Offer by setting the Tier 1. Value increment to 25% and the Tier 1 Size increment to +25000. Sid to offer, the total cost to the retail trader would be \$10,200 (1000 x 100.20 - 2000 x 45). The dollar size of the bidrask spread is \$500 (1000 x 0.20 + 2000 x 0.15). If the Barter Order satisfied the conditions of Rule 1, then the system would reduce the NEBO spread. by 25% or \$125 and offer the trade at \$10,075. On the NBBO sizes only half of the trade can be completed because only half of the XYZ is bid for. The system would show the marketmaker bidding for \$25,000 more of the sell-side (XYZ), or just over 800 shares Therefore, the system would show that the marketmaker is willing to complete 3/4 of the trade at the Tier 1 price. Furthermore, the marketmaker's Tier 2 price/size might allow the system to show that the final 25% of the trade could be completed at a higher price for the miail tracer Certain rule names cannot be modified by the user. These rule names are preceded by an asteriak in the name list. The "default rule is always in existence but, of course, the marketmaker can set the conditions of the rule so that it is never active. The marketmaker can set up any number of rules named show market in, where it is ordered by the system. These rules do not dictate automatic offers, but rather tell the system when to allow the marketmarker to respond manually to a bid or a trade request. For example, the marketmarket may want to respond manually whenever an order amount exceeds \$200,000, or when both sides of the trade fall within user-defined symbol lists.

Figure 18

HELP BOX					
Definitions of	/aneixes enci /	GOWELIE YZKE	Ranges.	2000025	
Variable	Cefreion			Range	(urris)
Detta	ats(Sking - S	ation) / (maxi å	iong, Schott)	0-100%	
SiGmatch	Number of St	Cleade digits c	f buy and self	0,123	4
	that make	i, starting from	teff.		
MCAPTIME	Market Cap o	f larger cop sti	3 3 8	(\$5)0	
MCAPmen	Market Cap o	d smaller cap i	stock		
VCLITEX	Avg Deby S-v	olume trecks) i	set 30 days	(Smrt)	
	of more-a	ctive stock			
VCLmm	Avg Dely 5-v	olume traded, l	ast 30 days.		
	of less-ac	ove stock			
BA_Debit	Debit verue o	tikdask sprea	d of Borter Orde	(Collers)	
	on NYSE	and Nasday in	exte prices		
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both_symiat	Group of use	*************			
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Figure 19

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HELF (EL).
Examples of Varigole usage.
Delta' measures the dollar amount of exposure of the Barter Order. If the retail trader's buy
side debit to $100,000 and the self-side credit is $75,000. The debit is
            25% + (100000 - 75000) / max(100000, 75000)
 "Signator" shows from troughy resided has discuss are. Material digits are counted from the last strike a match falls, after which remaining algris do not count.
                                                 SIC #2
#331
#331
                          SIC #1
                                                                         Sichwar
                          4015
                           2631
MCAPmap and MCAPmin measure market capitalization of the tagger and amaker stock.
respectively. To ensure that both studio market cap expends $1 billion, enter "MCAPmin > 1. To ensure that at least one-shocks market cap exceeds $10 billion, enter "MCAPmins >=
10
VOLTEX and VOLTER measure the dollar volume of the more-and less-active stude.
respectively. To presure that both shocks those at least $2 million per day, on everage, error VO(m) \approx 2. To identify tractes in which realizes shock tractes more than $2 million per day,
 on sverage enter "VOLTEX 4=?"
 BA, Departed the cooler section of a Berner Order on the SEEC market. If a retail trader washes to
by 100 ABC on the NBRO market 50-50 25 and set 300 X17 on the NBBO market 20-20-10, 
from the dollar size of the spread is $55, or 100 x 0.25 + 300 x 0.10.
 ether synties and both, emited show the manastractor to identify whether shock symbols fall or 
marketingwar-organications. Cuspose the manastractor safe up there is to 
List 1: ISM, CPO, DELL SUNIV. HWP
 List 2: GNL F DXX
List 3: ACCT, ACRE, AMGN, AMAT, AMCC.
To ensure that of lenst one of the Barter Order symbols falls in this 1 to 3, enter "efficir symbols (all single field of the Barter Dodge symbols (all single field field field), enter "both, symbols (all single field).
```

Define Order Continger			
Name	Conditions: Comparison Security		
Techs_up_2	Select Variable Operator Costator Symbol		
SPX_up_for_day	[SUNW]Price >= 1.02*[SUNW]Cprice(D-1)		
NDX_crosses_mavg	[CSCO]Price >= 1.02*(CSCO]Cprice(D-1)		
star_on_low	[#]Price >= 1.02*[#]Cprice(D-1)		
New Delete	Add Edit Remove		
	OK Cancel Help		

Figure 21

Help Screen-Define Contingent Orders

An order continuency is a set of user-defined conditions that must be satisfied before a "primary" order (i.e. symbol: buy/sell, quantity, market/limit) is sent, and by giving this group of conditions a label, or name, that will be used when the primary order is created.

To create and name a new order contingency enter the new name in the top field under "Name" and click New The name will be entered in the lower field along with the names of existing order confingencies. To delete an existing order confingency, including both its name and conditions, nightight the name in the lower field and click Delete. To enter the conditions that are associated with an order confingency, highlight the name in the lower field and begin typing conditions in the lower field and begin typing conditions in the log field under "Conditions".

Conditions of an order consingency are used to describe market characteristics. The system sends an order only when all of the conditions are satisfied. (To send an order using "or" logic, create two or more primary orders in the Send Contingent Order window, and apply a different Contingency Name to each primary order.) A Condition may consist of variables, arithmetic operators, numerical constraints, security symbols, and a companion operator such as "graster than or equal to". Variables can be pre-defined by the system and include large numbers of fundamental, technical, flationical, and descriptive characteristics. These variables and their minemorial aboverations are accessed through a pop-up screen in response to clicking the Select Variable button. Examples of variables are "one-year ago samings per share," 10-day moving sverage", "percent change in price over last 30 days", and "shares outstanding". Users can create new variables by combining system variables with antimutes operators, as in [Book Value / Shares Cutstanding]. Thus, user-defined expressions can be created and tested against over-defined percurrants, as in the condition, [Book Value / Shares Cutstanding -= Current Price]. Click here to isser variables system.

To create a new condition, type the condition in the top field under "Conditions" and click Add. To modify a condition, regnitight the condition in the lower field and click Edit. To delete a condition, highlight it in the lower field and click Fremove.

To save the changes that have been made, click OK. To ignore the changes that have been made short the seal Save, click Cancel

Figure 22

Help Screen-Variable Syntax

in the examples below, veriable refers to any system or user-defined variable, such as "Price" for the intraday lest tracked price of a security

[SYM]/rertable is the variable for the security whose symbol is SYM. For example, [CSCO]Cprice is yesterctay's closing price of Casco.

[#] is a special symbol which denotes the security for which an order will be sent. For example, suppose that within a portfolio of ten stocks, each stock is to be sold using a market order when the stock has risen 2% from the previous close. By using the [#] symbol, only one contrigency need be defined in the Define Order Contingencies screen, and the same condition can be applied to the ten different stocks in the "Send Contingent Orders" screen.

Note that when entering a limit price that is dependent on the market picture at the time the order is delivered, the [#] symbol may be omitted, since the symbol of the intended security is already given in the Send Contingent Order screen

variable (0-n) is the variable measured back n tracing days. For example, CPrice(0-3) is a closing price these tracing sessions ago. If "n" is not entend, it is assumed to be zero. For certain variables whose default is daily measurement, the latter D may be excluded. For example, CPrice(-5) is the closing price 5 feeding days ago.

For certain fundamental variables, variable (Q-n) and variable (Y-n) are the variable measured back in quarters and in years, respectively. For example, EPS(Q-1) is "Earnings per Share" measured 1 quarters ago. EPS(Q) is the most recent quarterly earnings per share, whereas EPS(Y) is the earnings per share for the most recent facal year.

(himmen) is an order suspension qualifier which is entered at the and of a condition and which solds the contingent order until the time indicated on the day indicated by n. For example, (15.45+1) holds an order without sending it to the market until 3.45pm on the trading day after loday. If n is not entered, it is assumed to be zero. When passage of time causes the suspension qualifier to be arrelevant, an order is sent to the market only if the remaining market contingencies are satisfied.

Figure 23

Send Contingent Order			
Contingenc	y Name:	Techs_up_2	
Symbol:	MSFT		
Action:	BUY	▼	
Quantity:	1,000		
Execution?	Type:		
O Man	ket id Limit		
	endent Limi	f Ask	
ľ			
	Send	Cancel Help	

Figure 24

Help Screen—Send Contingent Order A contingent order is one that will not be sent unit one or more user-defined conditions are satisfied. Furthermore, the limit price of the order rather than being a fixed price, may be dependent on the market picture at the time that the order is sent. For example, the "dependent limit price might be the current ask price of the stock at the time the order is sent. Or, the dependent limit price might be the most recent closing price of a stock, paus the product of the change in the SPX index for the day and the pete of the stock relative to the SPX index.) To learn about the syntax that can be used to enter contingency conditions and dependent limit prices, refer to the help screen on variable syntax. In order to apply contingent orders, a set of user-defined conditions must be defined in the Celline Order Contingency screen and given a name that is used in the first field of the Send Confingent Order screen.

Figure 25

Define Baskets				
Enter Basket Name	Enter Symbol Formula	View Syr	nbols, Quantities	
Sell_HiTech	n (mersection) Li (union)	IVAX	\$100,000	
1. BigCap_Healthcare 2. Buy_Value 4. NDX_Beta_Unity	(tech_symlist_1 U technical_fitter_3) n Portfolio_4	ABX ABS BA BMY CSCO DF	\$100,000 \$100,000 \$100,000 \$100,000 \$100,000 \$100,000	
New Renewe Renewe	No of Symbols in Baster:	EC EGRP IBM IVAX LLY KRI	\$100,000 \$100,000 \$100,000 \$100,000 \$100,000 \$100,000	
O from the same of the O from the section of the Same of Amount of the Same of	980 🕠 950 ᢏ	MRK MCD MLI MO NOC	\$100,000 \$100,000 \$100,000 \$100,000 \$100,000	
O superior programs O superior programs O superior programs	# G8U USD (USD (PCG SCH	\$100,000 \$100,000	
Save Can	cal Help	Add Symbo	Remove Symbol colly Guartity	

Figure 26

Select	Quanti	y	iodol	997		
Egys	Carrer	cy Am	ounts			
	i Beta o		******	errid		
Targ	et Expor	ture				
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Figure 27

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Enter Symbol Formula

in rades to use this section, you must understand the France parts and Textures (Filter words) and the Syntol Lists window.

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Symbol Lists	
Enter List Name	Enter Symbol:
1. Low_Price 2. BigCap	IBM SUNW
4. tech_symlist_1	DELL CPQ
New Edit Delete	Add Remove
	Copy Symbols from File OK Cancel

Figure 29

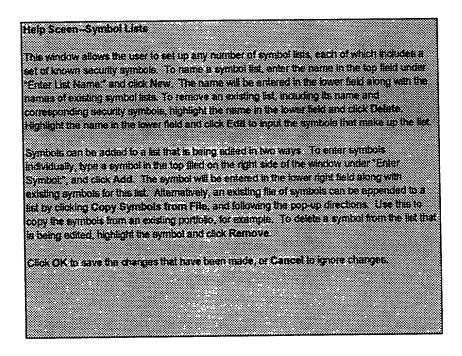


Figure 30

Fundamental and Technica	nical Filters				
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1	Vol_Avg_Daily_Dollar > 2.0		E ON ₹	5 0 0	
		100008	רר,	***************************************	
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71	OK Canoel	l			

Figure 31

Help Screen-Fundamental and Technical Filters

Whereas the Symbol Lists window is used to set up lists of known symbols, the Fundamental and Technical Filters window is used to set up lists of symbols with desired market, portfolio-, and risk characteristics. Each such list is called a "Filter". The window is partitioned into two sections. (1) Filter Name and (2) Conditions.

To create and name a new filter, enter the new name in the top field under Filter Name and click New. The name will be entered in the lower field along with the names of existing filters. To delete an existing filter, including both its name and conditions, highlight the name in the lower field and click Delete. Highlight the name in the lower field to define the conditions of the filter, as described below.

Conditions of a filter are used to describe its characteristics. The system searches to find all securities which satisfy all of the stated conditions. (To create a filter where any, not all, of the conditions are met, first create filters of one condition, and then apply the <u>ynon operator</u> to those filters in the Define beakets window.) A Condition may consist of variables, arithmetic operators (immerical constants, and a comparison operator, such as "greater than or equal to". Variables can be pre-defined by the system and include large numbers of fundamental, technical, historical and descriptive characteristics. These variables and their immerioric abtraviations are accessed through a pop-up screen in response to clocking the Select Variable button. Examples of variables are "one-year-age sarrings per share". "It day moving average", "percent change in price over last 30 days," and "shares outstanding". Users can create new variables by combining system variables with arithmetic operators, as in [Book Value / Shares Outstanding). Thus, user-defined expressions can be created and fested against user-defined benchmarks, as in the condition, [Book Value / Shares Outstanding -- Current Price].

To create a new condition, type the condition in the top field under "Conditions" and click Add. To modify a condition, highlight the condition in the lower field and click Edit. To delete a condition, highlight if in the lower field and click Remove

Once at least one condition has been entered for a filter, clicking View Symbols will display the symbols that are associated with the filter. To add symbols individually, type a symbol in the top field under the View Symbols button and click Add Symbol. To delete a symbol from the list, highlight the symbol and click Remove Symbol.

To save the changes that have been made, click OK. To ignore the changes that have been made since the fast Save, olick Cancel

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Figure 33

BarterSecurities Control Center

The **Control Center** is the starting point to create and send orders, and to check on trades and positions. Although users may have multiple accounts, the information shown in the **Control Center** applies only to the **Account** designated in the upper left corner.

You may create a new order by clicking the **Place Order** button on the upper right of the screen. Doing so pops up the <u>Order Entry</u> screen from which you may (1) save the order for later use, (2) create a Market or Limit order, or (3) trade directly from the <u>Limit Order Book</u> (LOB) for your order.

The **Open Orders** tab shows orders that have been sent and are pending prior to execution. For example, if you submit a limit order that is away from the market and so cannot be traded, it will be shown in this tab. Orders are shown as Open, Filled, Out, Canceled, Part Fill, Part Fill--Canceled, or Part Fill--Out. Right-clicking on an order's line brings up a menu which allows you to change or cancel the order. Note that when you trade directly from the LOB, you receive an instantaneous confirmation; hence, your order will not show up in the Open Orders tab.

The **Order History** tab summarizes the barter trades that you have made. By default, trades for all symbols are shown. By filling in the appropriate fieds, you may choose to limit the viewed barter trades to only those involving one stated symbol, or only those involving two stated symbols in combination. You may also choose to view only those trades within a stated historical time period. By clicking on a column header, you may sort trades in the list according to the column's attribute. (E.g., "symbol" or "Date/Time".)

The **Saved Orders** tab shows all orders that you have saved for delivery in the future. If you saved an order from the <u>Market Order Entry</u> or <u>Limit Order Entry</u> screens, that fact is indicated in the **Type** column. Double-clicking on one of these orders pops up the respective Market or Limit screen for modification of the order and/or order delivery. If you saved the original order from the main **Order Entry** screen, then there is no corresponding indicator in the **Saved Orders** tab. Double-clicking on such an order pops up the main **Order Entry** screen from which you can initiate a limit or market order or choose to trade directly from the LOB. Right-clicking on any saved order pops up a menu that allows you to trade the order from the LOB, edit the order, or delete it.

The **Portfolio** tab lets you view your current inventory of long and short securities. Double-clicking on any security's row in this tab pops up the main **Order Entry** screen with the security symbol and quantity filled in to effect a closing trade. For example, if you are short 500 IBM, the **Order Entry** screen would show a buy of 500 IBM. After filling in a buy-side security and quantity, you may submit the order.

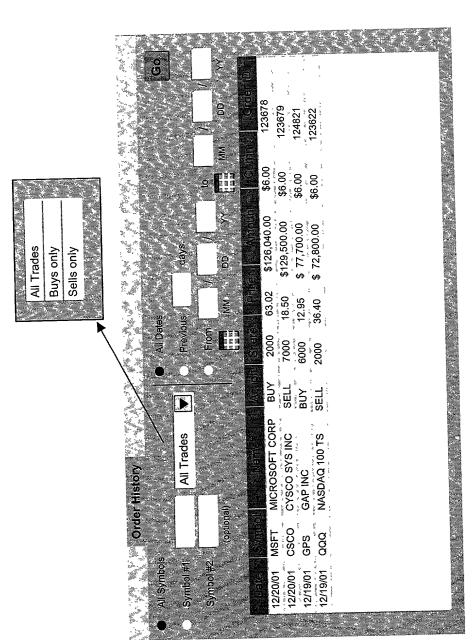


Figure 35

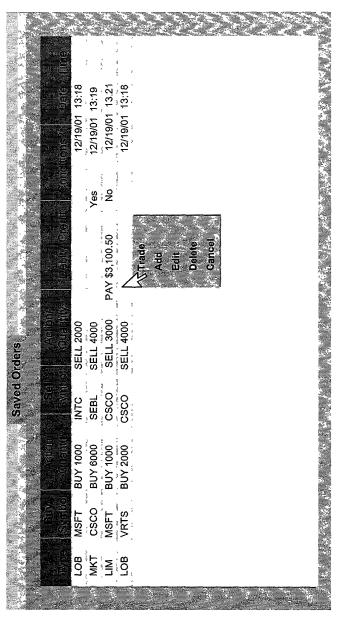


Figure 36

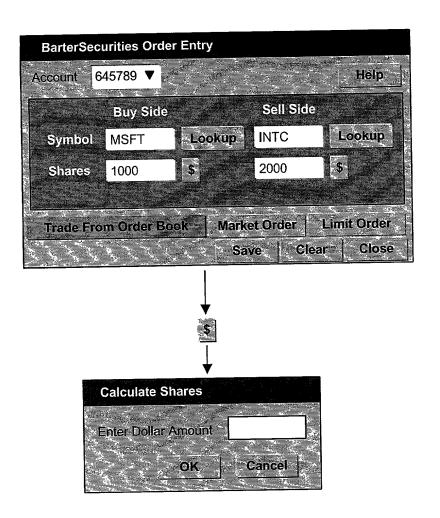


Figure 37

BarterSecurities Order Entry

Bring up the **Order Entry** screen either by clicking the **Place Order** button on the **BarterSecurities Control Center**, or by double-clicking a saved order. To begin to place an order, first make sure the **Account** number in the upper left of the screen is correct. Then describe your order by filling in just four fields: buy-side symbol, sell-side symbol, buy-side shares and sell-side shares.

If you wish to express quantity in terms of dollars, click the "\$" button next to a **Shares** field. The **Calculate Shares** screen pops up in which you can enter the desired number of dollars. Clicking **OK** transforms the dollars into shares of a security based on the **Last Trade** price of the security.

Unlike traditional one-sided orders, you don't have to specify limit or market status to trade a barter order unless you prefer to do so. You can trade directly from the <u>Limit Order Book</u> for your order.

Market Orders

To send a market order after you have filled in symbol and quantity information, click **Market Order.** You will be asked whether you would like to attach contingencies to your order. For example, you could send your market order only when the price of your buy-side security touches \$50. To learn more click <u>Market Order entry.</u>

Limit Orders

To send a limit order after you have filled in symbol and quantity information, click **Limit Order.** You will be asked to attach a limit price to your order as well as other optional information. To learn more click <u>Limit</u> Order entry.

Trade from Order Book

To view the current offers for you order, or to trade directly against the existing offers for your order, click **Trade from Order Book** after you have filled in symbol and quantity information on the **Order Entry** screen. Using the Limit Order Book (LOB) lets you complete a trade without specifying a limit price for your trade and even without specifying Market or Limit status. You can trade on individual offers that are internal to the BarterSecurities system, or you can trade simultaneously with one-click (Quick Fill) on all of the available internal offers up to the quantities that you specified in your incoming order. To learn more about the fastest way to trade your order, click Limit Order Book.

Save Order

To save an order for use later click the **Save** button. The order is saved in the **Saved Orders** tab of the **Control Center.** When you double-click the order in the **Control Center,** your order will pop up in the **Order Entry** screen, from which you can designate a market or limit order, or **Trade from Order Book.** If you wish to save an order along with limit order information, you should click the **Limit Order** button on the **Order Entry** screen, enter the relevant information, and then click the **Save** button on the **Limit Order Entry** screen. The order will still be saved in the **Saved Orders** tab of the **Control Center,** but double-clicking the order will pop up the **Limit Order Entry** screen from which you can modify your information and/or send your order. Likewise for saved market orders.

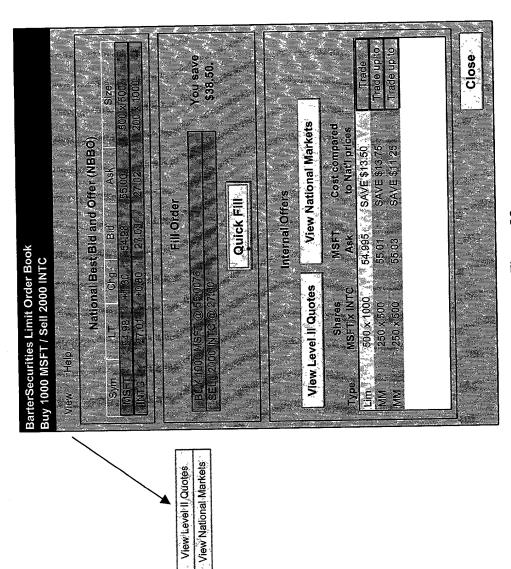


Figure 39

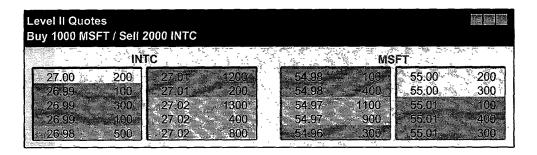


Figure 40

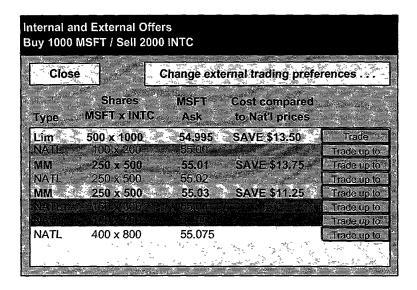


Figure 41

BarterSecurities Limit Order Book (LOB)

You can use the LOB to view national-market information for the the securities that comprise your barter order, or you may view and trade on the BarterSecurities system-generated ("Internal") offers for your order. When you trade on an Internal offer, you receive an **Instant Confirmation.**

For the stocks that you specified in the <u>Order Entry</u> screen you can view traditional single-stock National Best Bid and Offer (NBBO) prices and sizes, single-stock national Level II quotes, and national-market offers for

You can trade on Individual Internal offers, or you can trade simultaneously with one-click ("Quick Fill") on all of the available Internal offers up to the quantities that you specified in your incoming order You can observe the value of the difference between National and Internal offers for your barter order ("You Save").

What do you want to link to?

National Market Information

Creating National Market Responses on the BarterSecurities Limit Order Book Trading on Individual Offers for a Barter Order Trading using the Ouick Fill button

Calculation of Savings from Internal Offers on the BarterSeunties Limit Order Book

Instant Confirmation

Figure 42

National Market Information

The BarterSecurities Limit Order Book (LOB) provides three types of national market information for the stocks that you specified in the <u>Order Entry</u> screen: (1) National Best Bid and Offer (NBBO) markets, (2) Level II Quotes, and (3) national offers for you barter (two-sided) order.

NBBO Markets

The top section of the LOB shows your incoming order and the NBBO markets for the two stocks that you specified in your order. The NBBO information shown is the last trade, daily pice change, bid, ask, bid size, and ask size for each security. Bid and ask sizes are shown in numbers of shares, rather than in hundreds of shares.

Columns can be reordered by dragging and dropping.

Level II Quotes

Level II Quotes for the two stocks that you specified in your barter order can be viewed either by clicking the **View Level II Quotes** button in the Individual Offers section of the LOB, or by choosing **View Level II Quotes** from the **View** menu at the top of the LOB.

In the Level II Quotes screen live Level II bids and offers are shown for your sell-side security on the left and for your buy-size security on the right. Clicking the <Collapse> button places the bids of the security that you intend to sell next to the asks of the security that you intend to buy. In this form it is easier to see the capacity of the national markets to satisfy your incoming order.

National ("External") Barter Offers

National offers for your two-sided order can be viewed either by clicking the **View**National Markets button in the Individual Offers section of the LOB, or by choosing View National Markets from the View menu at the top of the LOB.

The National Markets screen shows the quantity of shares (in the ratio that you specified in your incoming order) that is available at respective bid prices (for your sell-side stock) and ask prices (for your buy-side stock). This information is compared to the offers that are internal to the Barre-Securities system to calculate the price and quantity advantages of trading on Internal markets.

Trading on Individual Offers for a Barter Order

The bottom section of the Limit Order Book (LOB), entitled "Internal Offers", normally shows several offers for the two-sided order that you specified in the <u>Order Entry</u> screen. These offers are <u>internal</u> to the BarterSecurities system; i.e., they are not available in the national markets. The system displays all available internal offers up to a cumulative share quantity equal to the quantities that you specified in Order Entry screen. The offers are ranked from most favorable to least favorable offer price, and they retain the ratio of buy-quantity to sell-quantity that you specified. IMPORTANT: All offers are expressed as selling your sell-side security on the current NBBO bid price and buying your buy-side security at the variable Ask price shown.

The data displayed for each internal offer are (1) a barter quantity expessed in actual (not hundreds of) shares, (2) a sell-side security bid price (i.e., the current NBBO bid), (3) a buy-side security ask price (used to rank the offers) and (4) a dollar amount of savings relative to executing your order on the national markets. See how Savings is computed.

Next to the most attractive offer is a **Trade** button and next to each subsequent offer is a **"Trade up to"** button. Clicking on one of these buttons generates an <u>instantaneous trade report</u> at the quantities and prices currently displayed. If a trader clicks a **"Trade up to"** button, then the indicated offer and all more attractive offers are sent for execution. NOTE: Traders must exercise care if displayed offers are changing rapidly.

A **Save** amount less than zero means that it may be more expensive to execute your order internally (i.e., on the BarterSecurities system) than on a national market. However, the BarterSeucirites system has these advantages: (1) your order confirmation is immediate, (2) your specified security quantity ratio is preserved, and (3) the internal quantity depth offered may be greater than on the national market.

Figure 44

ek di 400, fisa karuki kawanzia di ila

Trading using the Quick Fill button

The middle section of the Limit Order Book (LOB), entitled "Fill Order", provides a convenient way to view the aggregation of the <u>Individual Offers</u> shown in the bottom section of the LOB. The Quick Fill offer is designed to fill your incoming order, provided that enough individual offers exist to do so. The Quick Fill quantity is the sum of the available individual offer quantities up to the size of your incoming order. The Quick Fill sell-side price is that security's current NBBO bid and the buy-side price is the quantity-weighted average of the individual offer buy-side ask prices.

The data displayed for the Quick Fill offer are (1) buy- and sell-side quantities expessed in actual (not hundreds of) shares, (2) the sell-side security bid price (i.e., its current NBBO bid), (3) a buy-side security ask price and (4) a dollar amount of savings relative to trading the Quick Fill quantities on the national markets. See how Savings is computed.

To trade against the Quick Fill offer, just click the **Quick Fill** button. Doing so generates an <u>instantaneous trade report</u> at the quantities and prices currently displayed. NOTE: Traders must exercise care if displayed offers are changing rapidly.

Quick Fill savings less than zero means that it may be more expensive to execute your order internally (i.e., on the BarterSecurities system) than on a national market. However, the BarterSecurities system has these advantages: (1) your order confirmation is immediate, (2) your specified security quantity ratio is preserved, and (3) the internal quantity depth offered may be greater than on the national market.

Figure 45

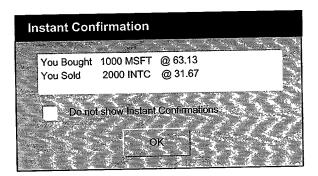


Figure 46

Instant Confirmation

Whenever the **Quick Fill** button (middle of LOB) or a **Trade** or **"Trade up to"** button (lower part of LOB) is clicked, an immediate confirmation is generated. The **Instant Confirmation** shows the amount of the buy-side security purchased and the amount of the sell-side security sold, along with the respective prices.

If an LOB offer is changing as it is clicked, the **Instant Confirmation** may not be for the amount of buy-side and sell-side securities that you intended to buy/sell. However, the following conditions are always satisfied: (1) you will always trade the buy-side and sell-side securities in the ratio indicated in the **Order Entry** screen, and (2) you will never trade more than the quantities indicated in the **Order Entry** screen.

When the Instant Confirmation is received, you no longer have an order pending. If you have not traded all of the quantity that you desired to trade, you must send an additional order by clicking again on the **Quick Fill** or **Trade** (or **"Trade up to"**) buttons. The maximum quantities shown in the offers will reflect the amount of the original order that has already been traded.

Creating National Market Responses on the BarterSecurities Limit Order Book

To illustrate how national offers for a barter order are calculated, suppose you have just submitted the order:

BUY 1000 MSFT / SELL 2000 INTC.

Also assume that the national order books for INTC on the bid side and MSFT on the ask side are as shown in Tables 1A and 1B.

Table 1A INTC: National Bids						
Bid Price	Bid Size					
27.00	200					
26.99	500					
26.98	500					
26.97	1000					

Table 1B MSFT: National Asks							
Ask Price	Ask Size						
55.00	500						
55.01	1000						

Offer prices for your order (executed in a 2-1 ratio) as derived from the national markets for the single stocks, are shown in Table 2 in order of best to worst offer.

Table 2 National Offers for your Barter Order Buy 1000 MSFT / Sell 2000 INTC								
Row	Size	INTC	MSFT	Barter Offer Price				
Number	(MSFT x INTC)	Bid Price	Ask Price	$(MSFT - 2 \times INTC)$				
1	100 x 200	27.00	55.00	1.00				
2	250 x 500	26.99	55.00	1.02				
3	150 x 300	26.98	55.00	1.04				
4	100 x 200	26,98	55.01	1.05				
5	400 x 800	26.97	55.01	1.07				

Based on the best MSFT offer of 500 shares (Table 1B), the system looks for 1000 shares on the INTC side. It finds only 200 INTC at the best price (Table 1A), so that only 100 MSFT can be matched with it (Table 2, row 1), leaving 400 MSFT offered at 55.00. The 400 MSFT at 55.00, requires 800 INTC, but there is only 500 INTC at the next price of 26.99 (Table 1A). It can be matched against only 250 MSFT at 55.00 (Table 2, row 2), leaving 150 MSFT at 55.00 that is still usable, and so on until there is enough depth to fill your order, or until the national books are exhausted.

In Table 2, the Barter Offer Price is the cost of trading the indicated piece of your order at each row's prices and sizes, and is expressed per 100 shares of the buy side, in this case MSFT.

Calculation of Savings from Internal Offers on the BarterSecurities Limit Order Book

Trading on the BarterSecurities system saves you money relative to the national markets. An illustration of this is given below.

Suppose you have just submitted the order:

BUY 1000 MSFT / SELL 2000 INTC.

Also suppose that the national market offers for your order are as is shown in Table 1 (see separate sheet). To see how these offers were calculated, <u>click here</u>.

[Table 1]

Often, there are additional offers that are internal to the BarterSecurities system that will improve national markets by providing either more favorable execution prices, by providing a greater quantity to trade, or both. Certain offers may originate with professional marketmakers. Other internal offers may arise due to outstanding limit orders, either alone or in combination. For example, a limit order to buy INTC and sell CSCO, and a second order to buy CSCO and sell MSFT, may create an "implied' offer for an incoming barter order to buy MSFT and sell INTC. To learn more, see Order Matching.

Suppose that one marketmaker is willing to respond to your barter order by simultaneously buying 1000 INTC at 27.00 and selling 500 MSFT at 55.00, and that a second marketmaker is willing simultaneously to buy 1000 INTC at 26.99 and sell 500 MSFT at 55.01. In the form of the previous table, the marketmaker offers are expressed below.

Size INTC MSF	T Barter Offer Price
(MSFT x INTC) Bid Price Ask P	rice (MSFT – 2 x INTC)
500 x 1000 27.00 55.0	0 1.00
500 x 1000 26.99 55.0	1 1.03

The offer prices for your barter order, updated to include the marketmaker offers, are shown in Table 2 (see separate sheet). Note that the second marketmaker's internal response is split into two rows (#4 and #5) because only the first row of the two is necessary to fill your order of 2000 INTC, 1000 MSFT.

[Table 2]

The introduction of internal offers represents savings to you, the customer. To compute these savings, which are shown in Table 3, the system compares the internal offers to the offers that would have been available for those same shares in the national markets. In Table 3 (see separate sheet) the first row shows that the first

[Table 3]

Internal offer of 500 shares (Table 2, row 2) takes the place of three national offers of varying share amounts (Table 2, rows 1, 3, and 6). That is, an offer of 1.00 replaces three national offers of 1.00, 1.02, and 1.04. The weighted national offer is 1.022 (i.e., $$1.00 \times 100 + $1.02 \times 250 + 1.04×150), so the savings is $$11.00 \times 0.022$. Similarly, the Internal offer of 1.03 (Table 2, rows 4 and 5) would have been traded at 1.05 and 1.07 in the national market (Table 2, rows 7 and 8), implying a savings of $$18.00 \times 0.02 \times 100 + 0.04×400) on the BarterSecurities internal side. The total savings for your complete order is \$29.00.

Calculation of Savings from Internal Offers on the BarterSecurities Limit Order Book

Tables 1, 2, and 3

Table 1 National Offers for your Barter Order Buy 1000 MSFT / Sell 2000 INTC								
Row	Size	INTC	MSFT	Barter Offer Price				
Number	(MSFT x INTC)	Bid Price	Ask Price	(MSFT - 2 x INTC)				
1	100 x 200	27.00	55.00	1.00				
2	250 x 500	26.99	55.00	1.02				
3	150 x 300	26.98	55.00	1.04				
4	100 x 200	26.98	55.01	1.05				
5	400 x 800	26.97	55.01	1.07				

Table 2								
BarterSecurities Offers for your Barter Order Buy 1000 MSFT / Sell 2000 INTC								
Row	Size	INTC	MSFT	Order	Barter Offer Price			
Number	(MSFT x INTC)	Bid Price	Ask Pr	ice Type	(MSFT - 2 x INTC)			
1	100 x 200	27.00	55.00	National	1.00			
2	500 x 1000	27.00	55.00	Internal	1.00			
3	250 x 500	26.99	55.00	National	1.02			
4	150 x 300	26.99	55.01	Internal	1.03			
5	350 x 700	26.99	55.01	Internal	1.03			
6	150 x 300	26.98	55.00	National	1.04			
7	100 x 200	26.98	55.01	National	1.05			
8	400 x 800	26.97	55.01	National	1.07			

			Table	: 3		
		Saving	s from In	ternal Order		
:	<u>Ir</u>	ternal Offers		National Offers		
Buy-side	Table 2	Share-weighted	Table 2	Share-weighted		
Shares	Rows	Barter Offer Price	Rows	Barter Offer Price	Savings	
(1)	(2)	(3)	(4)	(5)	$(1) \times [(5) - (3)]$	
500	2	1.00	1,3,6	1.022	\$11.00	
500	4,5	1.03	7,8	1.066	\$18.00	
Total					\$29.00	

Figure 50

BarterSecurities Limit Order Enfry	Buy 1000 MSFT Last Bd 71 Ask Sell;20001MTC PAY 5900 PAY 5500	Total Dollar Limit (before commissions)	A Nuo ked	☐ All or None ☐ Do not reduce ☐ Minimum sell-side shares:	Trade order only if-	INTC. price (S. 1838 internol or order to	MSFT Price 54.95 Infest Dollar Limit	Cng, 190, 1466, 5500 H 4060 1 2500 H 4060 1 2500 1 2500 H	ayes amuning	
	AN 1. 0000		Conditions and		Ske conditions of conditions o					
	Sell 2000 INTC. PAYSSO PAYSSO P	Total Dollar Limit (before commissions) Paying more than O Receive at least \$ 1850		MSFT Price 54.95 Insertionar Limit NTC Price 27.05	MST 1 138 CPG BIG ARK MST 164.98 +1.30 164.97 55.00 5 5 INTC 27.01 +0.99 27.00 27.02	Submit	Figure 51		🎇 Barter Scrattes Market Order from	ELY 1000 MSFT - SELL 2000 INTC

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Limit and Market Orders

Limit Orders

Usually, limit prices for a barter order are expressed in terms of a Total Dollar Limit for the order as a whole, rather than in terms of per-share limit prices for individual securities.

Consider the barter order to Buy 1000 MSFT and Sell 2000 INTC. Suppose a trader wants to net from this order the same amount as if MSFT traded at \$50 and INTC traded at \$26. This is equivalent to receiving \$2000; i.e., $[2,000 \times $26 - 1,000 \times $50]$. By setting the Total Dollar Limit to "Receive at least \$2000", the trader allows the trade to execute at any combination of per-share prices that satisfy the limit, such as (\$50/\$26), (\$52/\$27), (\$49/\$25.50), etc.

The Total Dollar "current market" is shown in the upper right corner of the Limit Order Entry screen under the headers Last, Bid, and Ask. These values are based on the markets in the individual securities shown at the bottom of the screen. Suppose the current single-stock markets are:

	Last	Bid	Ask
MSFT	54.98	54.97	55.00
INTC	27.01	27.00	27.02

Then, as explained below, the Total Dollar spread of a barter order, BUY 1000 MSFT / SELL 2000 INTC

would be:

Last Bid Ask PAY \$960 PAY \$930 PAY \$1000

The Total Dollar "Last" is based on the "Last" prices of the individual securities. That is, "PAY $$960" = +1000 \times 54.98 - 2000 \times 27.01$. The Total Dollar Bid is based on buying MSFT on its bid and selling INTC on its ask.; i.e., "PAY $$930" \approx +1000 \times 54.97 - 2000 \times 27.02$. Normally you would not be able to trade at these prices immediately, but marketmakers might be able to do so. The Total Dollar Ask is based on buying MSFT on its ask and selling INTC on its bid; i.e., "PAY $$1,000" \approx +1000 \times 55.00 - 2000 \times 27.00$. Normally you would be able to trade at these prices immediately.

Thus, a Total Dollar Limit of "Pay no more than \$850", is \$150 more favorable to you than the value at which you can trade immediately, and it is \$80 more favorable than the value at which marketmakers might be able to trade your order for themselves.

If you prefer to think about your Total Dollar Limit in terms of individual stock prices, you may use the **Dollar Limit Calculator** in the middle of the Limit Order Entry Screen. Enter two share prices and click the **Insert Dollar Limit** button to create your Total Dollar Limit.

Setting a Total Dollar Limit can produce the same dollar results for a barter order as setting pershare limits, but it is less restrictive. It is recommended because it produces a greater probability of getting a barter order executed. Per-share limits should be used only if you are sensitive to the trade price of one of the legs of the order. If you do wish to set a per-share limit price for one or both securities in your barter order click on **Conditions>>>.** An additional segment of the Limit Order Entry screen appears, which allows you to set per-share limit prices and to set timing and other options for your order.

Market Orders

The default market order is "No price contingencies", which means that your order will be delivered as soon as you submit and confirm it. Alternatively, you may place a per-share price contingency on the <u>delivery</u> of the order. Upon submitting the order the system will ask you to confirm your order currently, but the order will not be delivered to the market until the indicated price contingency is satisfied. If and when the order is delivered to the market, it will behave like two traditional market orders: one for the buy leg and one for the sell leg.

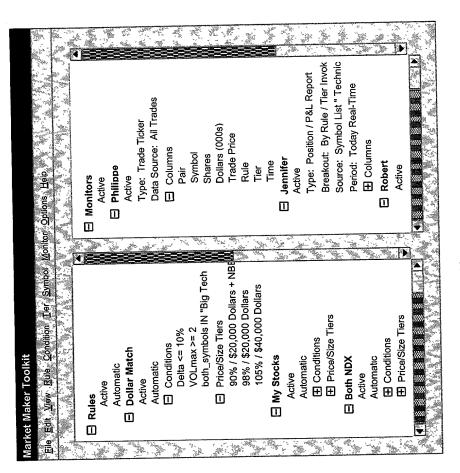


Figure 54

20% of the NBBO spread, for the current NBBO size. (Note that at -- Isolate the profit and loss impact of each decision rule on a types of orders at the corresponding NBBO price reduced by, say, the time that a response to an order is made, marketmakers know orders with the buy- and sell- legs in roughly equal dollar amounts, marketmaker can choose to show an automatic response to these For example, conditions might filter for particularly attractive barter -- specify how aggressively or passively to respond to it, either which security is being bought and which security is being sold.) -- measure the attractiveness of any incoming barter order, conditions and a set of price and size tlers which define the Each rule that a marketmaker composes consists of a set of having high liquidity, and coming from the same industry. A The BarterSecurities system provides a toolkit which allows responses to a barter order if the conditions are satisfied. manually or automatically, using customized rules, and marketmakers to real-time basis.

Marketmakers can customize **trade tickers**, or **position and P&L reports** to give them exactly the information they need on a real-time basis. Each report is associated with a **data source**, so that a P&L report may be constructed for only the securities in a defined symbol list, or only the trades that were invoked by a selected rule, etc.

Figure 55

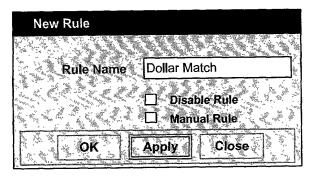


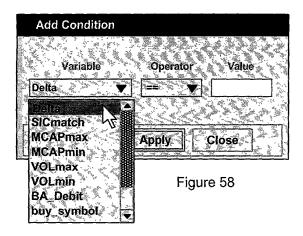
Figure 56

To create a rule, select **New...** from the **Rule** menu of the Marketmaker Toolkit. In the **New Rule** pop-up screen, enter the name of your rule, and choose whether to disable the rule or to make the rule manual.

Only Active rules are used to respond to barter orders. A rule can be activated or disabled at any time by right-clicking the rule name in the Toolkit and selecting the appropriate attribute. Disabled rules are dimmed in the Toolkit window.

All active rules produce automatic responses to barter orders if the rule's conditions are satisfied, unless you choose to respond manually. Responses to orders can be toggled from automatic to manual by right-clicking the rule name and selecting the appropriate attribute.

Figure 57



To create a set of conditions for a rule first click on the rule to select it. Then select New... from the Condition menu. In the Add Condition pop-up screen, choose a Variable and an Operator and enter a Value to define the condition.

Variables are keywords that define characteristics of the barter order such as (1) closeness of the buy-side and sell-side dollar amounts, (2) industry closeness of the two legs, (3) volumes, (4) market capitalizations, etc. Additionally, marketmakers can use variables to test for inclusion in default symbol lists, such as the S&P500, or in symbol lists that they define using the **Symbol** menu in the Toolkit.

Operators are usually equality and inequality signs, but change to <IN> and <NOT IN> when a variable is testing for inclusion in a symbol list.

An example of a condition is:

Delta < 10%,

where Delta is a measure of the closeness of the buy-side and sell-side dollar amounts. A delta of 10% means that the dollar amounts of the two barter order legs differ by 10% of the greater amount.

Another example of a condition is:

buy_symbol IN "Big Tech",

where "Big Tech" is the name of a symbol list that the user has defined.

Definitions of \ Examples	Variables and Allowable Value Ran	ges.
Variable	Definition	Range (units)
Delta	abs(\$long - \$short) / (max(\$long, \$short))	0-100%
SICmatch	Number of SIC code digits of buy and sell that match, starting from left.	0,1,2,3,4
MCAPmax MCAPmin	Market Cap of larger-cap stock Market Cap of smaller-cap stock	(\$bil)
VOLmax	Avg Daily \$-volume traded, last 30 days, of more-active stock.	(\$mil)
VOLmin	Avg Daily \$-volume traded, last 30 days, of less-active stock.	
BA_Debit	Debit value of bid/ask spread of Barter Order on NYSE and Nasdaq inside prices.	(Dollars)
The following variables buy_symbol	s are used to check for inclusion in a Symbol List. Symbol of the incoming order's buy-side security.	(List Name)
sell_symbol	Symbol of the incoming order's sell-side security.	(List Name)
both_symbols one_symbol	The set of two incoming security symbols. At least one of the incoming security symbols.	(List Name) (List Name)
The following variables Inventory_Buy_Shs	s are used to query a marketmaker's portfolio status. The number of shares of the incoming sell-side security (i.e., the MM is buying) currently in the MM portfolio.	(Shares)
Inventory_Sell_Shs	The number of shares of the incoming buy-side security (i.e., the MM is selling) currently in the MM portfolio.	(Shares)
Inventory_Buy_Vat	The dollar value of the incoming self-side security (i.e., the MM is buying) currently in the MM portfolio.	(Dollars)
Inventory_Sell_Val	The dollar value of the incoming buy-side security (i.e., the MM is selling) currently in the MM portfolio.	(Dollars)

Figure 60

Examples of Variable usage.

'Delta' measures the dollar amount of exposure of the Barter Order. If the retail trader's buy side debit is \$100,000 and the sell side credit is \$75,000, the **delta** is

25% = [100000 - 75000] / max(100000, 75000).

'SICmatch' shows how industry-related two stocks are. Matched digits are counted from the left until a match fails, after which remaining digits do not count.

SIC #1	SIC #2	SICmatch
4013	4031	2
2631	4031	0.

MCAPmax and MCAPmin measure market capitalization of the bigger and smaller stock, respectively. To ensure that both stocks' market cap exceeds \$1 billion, enter "MCAPmin >= 1". To ensure that at least one stock's market cap exceeds \$10 billion, enter "MCAPmax >= 10".

VOLmax and VOLmin measure the dollar volume of the more- and less-active stock, respectively. To ensure that both stocks trade at least \$2 million per day, on average, enter "VOLmin >= 2". To identify trades in which neither stock trades more than \$2 million per day, on average, enter "VOLmax <=2".

BA_Debit is the dollar width of a Barter Order on the NBBO market. If a retail trader wishes to buy 100 ABC on the NBBO market 50-50.25 and sell 300 XYZ on the NBBO market 20-20.10, then the dollar size of the spread is \$55, or $100 \times 0.25 + 300 \times 0.10$.

'Symbol' variables allow the marketmaker to identify whether stock symbols fall in marketmaker-created lists. Suppose the marketmaker sets the symbol list below:

List_1: IBM, CPQ, DELL, SUNW, HWP

To ensure that at least one of the Barter Order symbols falls in the list, enter one_symbol IN List_1.

To ensure that neither Barter Order symbol falls in the list, enter both_symbols NOT IN List_1.

Use "Inventory" variables to test a marketmaker's portfolio. To test whether a portfolio is short the security that the marketmaker is buying, enter

inventory_buy_shs < 0.

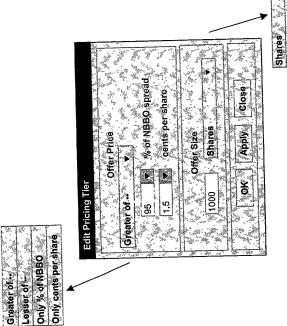


Figure 62

Shares
Dollars
Shares +NBBO
Dollars +NBBO

Figure 63

Use Price/Size Tiers to create a set of responses to barter orders that satisfy the conditions of a certain rule.

To create the response tiers first click on a rule to select it. Then select New... from the Tier menu. In the Add Price/Size Tier pop-up screen choose an Offer Price and an Offer Size. (A marketmaker response to a barter order is referred to as an marketmaker response to a barter order is referred to as an "offer, although both a single-stock bid and a single-stock offer are implied. At the time that the offer is made, a marketmaker knows which security is being bought and which is bing sold.)

An offer price may be expressed as a percentage of the current National Best Bid and Offer (NBBO) spread, in incremental cents per share, or as the greater or lesser of those two quantities. For example, suppose an incoming barter order is:

Buy 1000 ABCD Sell 2000 WXYZ, and suppose the NBBO markets are:

Bid Offer ABCD 52.02 52.05 WXYZ 24.01 24.03. The NBBO dollar spread for the barter order is \$70.00; i.e., 1000 * 0.03 + 2000 * 0.02). Therefore, a barter offer price of 90% implies a spread of \$63.00. A marketmaker who offers at 90% would be willing simultaneously to buy WXYZ on the bid and sell ABCD at 52.043. (\$63 = 1000 * 0.023 + 2000 * 0.02.)

An offer size is expressed either in shares or dollars, either alone or in addition to the current NBBO depth. An offer size of \$20,000 means that each leg of a barter order may be traded up to that amount.

Marketmakers can attach any number of price/size tiers to a given rule.

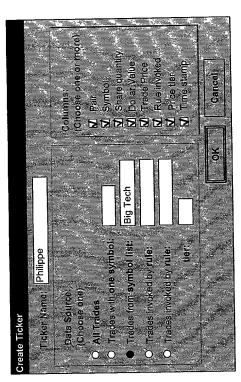


Figure 64

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Trade Tickers produce in real-time a new line of information for each of the marketmaker's automatic and manual trades.

Marketmakers can create different tickers based on multiple Data Sources. For example, one ticker might show the trades for all stocks within a certain user-defined symbol list, while another ticker might show all trades prompted by a selected trading decision rule.

Marketmakers also can select the **Columns** that they want the ticker to show, such as shares traded and trade price, and the rule that invoked a trade. The column **Pair** indicates which trades in a Trade Ticker were executed as part of the same barter order. Certain trades in a Trade Ticker may appear without the corresponding legs of their barter orders since the data source of the ticker excludes one leg. For example, a data source of Nasdaq 100 stocks would exclude IBM from a ticker in the case of a MSFT vs. IBM barter order. In this case, right-clicking on the unmatched trade in the ticker allows a marketmaker to access the trades' sibling".

Marketmakers can modify, delete, or move Trade Ticker columns by using the Monitor menu, by clicking and dragging column items within the toolkit window, or by right-clicking on the columns in the Trade Ticker screen. Marketmakers can retrieve snapshot P&L information on one or more trades by right-clicking on a trade ticker row.

Figure 66

Report Name			A STATE OF THE STA
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By stock symbol	All Trades		<u> </u>
By rule invoked	Trades with a		
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Figure 67

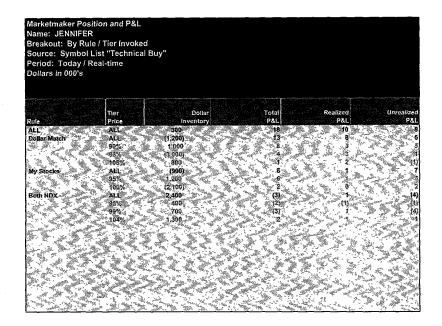


Figure 68

A Position and P&L Report (PPL) shows the cumulative share and/or dollar inventory along with profit & loss calculations, for all of the marketmaker's automatic and manual trades. Multiple PPLs may be created and viewed simultaneously. The information in these reports may be grouped ("Report Breakout") as the user desires, and the trades which comprise these reports may be a chosen subset ("Data Source") of all trades.

For example, the user may have P&L grouped and summarized by security symbol, or according to the trading decision rule or rule/tier combination which invoked each trade. The data source can be a subset of stock symbols (designated by a Symbol List name), or it can be all trades invoked by a Marketmaker Toolkit rule or rule/tier combination. Therefore, marketmakers can monitor on a real-time basis the profit and loss contribution of each decision rule and price/size tier that they create. This gives them incredible insight into the productivity of their rules and allows them to improve profitability over time.

Share and dollar inventories of securities, and realized, unrealized, and total P&L's can be generated either on a real-time basis or for historical periods. Report **Columns** can be chosen, modified, and moved as they are for <u>Trade Tickers</u>.

Any row in a Position and P&L Report can be right-clicked to generate a new report of individual trades that comprise the row.

Figure 70

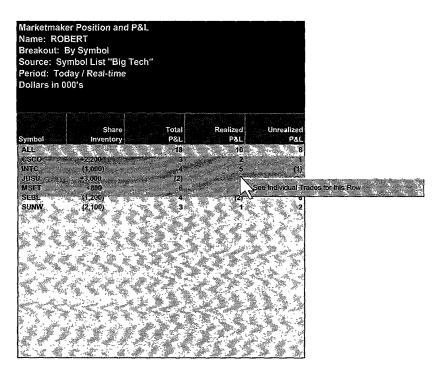


Figure 69

es Request for Manual Offer Tright WSFT ** \$55,000 View Level II	INTC = \$54.0 Deffa Deffa SFT INTC	500 × 1000 100 500 1000	Last Ctig Bid Ask 5126 52.92 +1.30 54.98 55.00 500 500 27.01 ±0.80 27.00 27.02 200 000 eal-time bid;	0.0	Time Kemaining
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Figure 71

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Figure 72

BarterSecurities Request for Manual Offer

The BarterSecurites <u>Marketmaker Toolkit</u> lets you define rules that automatically generate one or more offers on the Limit Offer Book for an incoming barter order when predefined conditions are met. However, you may specify in the rule that when the stated conditions are met, you are to be alerted so that you can make a manual response to the order rather than having offers generated automatically.

When the BarterSecurities Request for Manual Offer screen appears, you can review the incoming order and then (1) deliver an offer according to the price and size defaults that you set, (2) deliver an offer after modifying the price and/or size defaults, (3) close the screen manually without delivering an offer, or (4) let the screen close automatically, after a stipulated number of seconds, without delivering an offer. Nate that as long as the countdown clock is running, the sender of the incoming order will be aware that a manual offer is pending and may be delivered.

The BarterSecurities Request for Manual Offer screen is partitioned into four sections from top to bottom: (1) Incoming Order, (2) Offer Size, (3) Offer Price, and (4) Action.

Incoming Order

On the left is the incoming order expressed as it was entered; that is, the marketmaker may take the other side of the trade. In the following discussion, the term "buy-side" ("sell-side") refers to the security that the sender is buying (selling) and that the marketmaker may sell (buy). The dollar values of both the buy-side and sell-side securities are shown, along with the **Delta** of the trade. The smaller the delta, the closer together are the buy-side and sell-side dollar values. A delta of zero implies that the dollar values match. A delta of one implies that the barter order is almost one-sided.

The marketmaker may click the **View Level II** button to view real-time Level II quotes for the buy- and sell-side securities. The marketmaker may click the **Modify Defaults** button to change how the default Offer Size and Offer Prices are determined when the Request for Manual Offer screen pops up.

Offer Size

An offer size for the incoming barter order is calculated based on either (1) the price/size tiers stipulated in the Marketmaker Toolkit, or (2) the defaults that you specify in the Edit Manual Offer Defaults screen. The quantities in the offer size are always in the same ratio as the quantities in the incoming order. If you wish, you may change the initial size by (1) clicking the size increment/decrement buttons, (2) by typing in a new size in the buy-side or self-side fields (the opposite size is changed to retain the incoming share ratio), or (3) clicking the Full Size button, which causes the offer size to become the same as the incoming order size.

Offer Price

An offer price for the incoming barter order is calculated based on either (1) the price/size tiers stipulated in the Marketmaker Toolkit, or (2) the defaults that you specify in the Edit Manual Offer Defaults screen. If you wish, you may change the initial offer price by (1) clicking the price increment/decrement buttons, or (2) by typing in a new value in the available field.

Action

At any time, you may (1) click the green **Offer** button to send your offer as stated, (2) click the red **Cancel** button to close the screen without sending an offer, or (3) click the **Stop** button to stop the rundown clock. If you make none of these actions, the screen will close automatically when the clock has run down to zero.

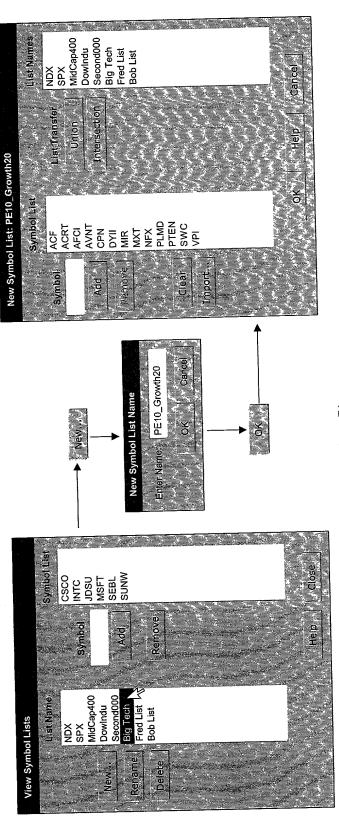


Figure 74

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View Symbol Lists

New Click New to create a new symbol list. A pop up screen requests the name of the

new symbol list.

Select a symbol list name and click Rename to rename a symbol list while keeping its symbols intact. To base a new symbol list on the symbols in an existing list, use the New... function. Rename

Select a symbol list name and click Delete to remove the list name, along with its symbols.

<u>Add</u> Fill in the **Symbol** field and click **Add** to add one symbol to the selected symbol list.

Select a symbol from the **Symbol List** column and click **Remove** to remove the symbol from the selected symbol list.

Figure 75

New Symbol List

Add Fill in the **Symbol** field and click **Add** to add one symbol to the new symbol

Remove
Select a symbol from the **Symbol List** column and click **Remove** to remove the symbol from the new symbol list.

Import Click to copy a symbol list from another application.

<u>Clear</u> Click to remove all symbols from symbol list.

Union

To add the symbols from an existing symbol list to the symbols in the **Symbol**List column, select one or more names from the List Names column and click

Union. Duplicate symbol names will be removed from the new list.

To create a new list from symbols that are common to the symbols in the **Symbol List** column and the symbols in one or more existing lists, select the names from the **List Names** column and click **Intersection**.

Figure 76